

## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

1. (Currently Amended) A Method to measure and correct or adjust ~~the~~ sound signal presented to ~~the~~an eardrum by means of a hearing aid in its operational position, said hearing aid including at least one microphone, (1) at least one digital signal processing system comprising at least one digital signal processor (2) for transforming ~~the~~an incoming sound into a transformed signal in conformity with a desired transformation function, said hearing aid having at least one receiver (3) and a power supply, as well as at least one sensing means (4) for sensing the signal appearing in front of the eardrum, and at least one comparison means (5), characterized bysaid method comprising the steps of:

A. establishing a model of ~~the~~an electroacoustic system comprising the ear and the hearing aid, said model simulating the actual sound signal in the ear canal in front of the eardrum, and storing said model in the hearing aid,

B. sensing the actual sound signal appearing in front of the eardrum, converting said sound signal into a digital representation and feeding it back to an input of the digital signal processing system,

C. comparing said digital representation of said sensed signal with said model in said comparison means (5) and, in case there is a material difference between the sensed signal and the model, to generategenerating an error signal for adjusting said model to the

actual sound environment in front of the ear-drum, and by further using said error signal to adaptively modify the process in said digital signal processor (2) by minimizing said error signal.

2. (Currently Amended) A Method according to claim 1, ~~characterized by~~further comprising the step of storing said model in a model processor (6) and using said material difference from said comparison as an error signal to adaptively modify said model in said model processor, updating said model to the actual sound environment in front of the eardrum.

3. (Currently Amended) A Method according to claim 1, ~~characterized by~~wherein said step of using said error signal to modify the process in said digital signal processor comprises using said material difference of the comparison as an error signal for a parameter adjustment processor (7) in said digital signal processing system for adjusting the process in said digital signal processor (2).

4. (Currently Amended) A Method according to claim 1, characterized byfurther comprising the step of using said material difference from said comparison as an error signal for said parameter adjustment processor (7) to modify the model in said model processor.

5. (Currently Amended) A Method according to claim 1, characterized byfurther comprising the step of using said material difference of said comparison as an error signal for

said parameter adjustment processor (7) to adjust the transformation parameters of said digital signal processor (2) and said model function in said model processor (6).

6. (Currently Amended) A Method according to claim 1, characterized byfurther comprising the step of using said material difference from said comparison as an error signal for a process in a microphone signal correction processor (9) connected between said sensing means (4) and said comparison means (5).

7. (Currently Amended) A Method according to claim 1, characterized byfurther comprising the step of using said material difference from said comparison as an error signal to modify the transformed signal efffrom said digital signal processor (2) in a modification means(8).

8. (Currently Amended) A Method according to claim 1, characterized byfurther comprising the step of using said at least one comparison means (5), said model processor (6) and said parameter correction processor (7) and even the said microphone signal correction processor (9) as at least parts of the electroacoustic model.

9. (Currently Amended) A Method according to claim 1, characterized by usingwherein said sensing means comprises a probe microphone as said at least one sensing means (4).

10. (Currently Amended) A Method according to claim 1, ~~characterized by~~  
~~usingwherein~~ said receiver (3)~~is used~~ as said at least one sensing means (4).

11. (Currently Amended) A Hearing aid including means to measure and correct or  
adjust the sound signal presented to the eardrum in ~~its~~the operational position of said hearing aid,  
said hearing aid including at least one microphone (1), at least one digital signal processing  
system comprising at least one digital signal processor (2) for transforming ~~the~~an incoming  
sound into a transformed signal in conformity with a desired transformation function, said  
hearing aid further having at least one receiver (3) ~~and a power supply, as well as~~ at least one  
sensing means (4) for sensing the sound signal appearing in front of the eardrum, and at least one  
comparison means (5), ~~characterized in that~~wherein said signal processing system includes  
processing and storing means (6) adapted to hold a model function of ~~the~~an electroacoustic  
system comprising the ear and the hearing aid, thus, simulating the actual sound signal in front of  
the eardrum, the said comparison means (15) ~~being adapted to compare~~comparing the signal  
sensed in front of the ear drum with the said model function to generate at least one error signal  
for adjusting said model to the actual sound environment in front of the eardrum, and  
~~that~~wherein the digital signal processing system also contains modification means (7;8) for  
effecting, in response to said at least one error signal, a modification of the output signal of the  
digital signal processor (2) into a corrected transformed signal, ~~in case~~when there is a material  
difference between said sensed signal and said simulated model.

12. (Currently Amended) A Hearing aid in accordance with claim 11, ~~characterized in~~  
~~thatwherein~~ said modification means (8) in said signal processing system is arranged to receive  
said at least one error signal from said comparison means (5) to modify said transformed signal.

13. (Currently Amended) A Hearing aid according to claim 11, ~~characterized in~~  
~~thatwherein~~ the modification means (7; 8) in said signal processing system contains a parameter  
adjustment processor (7) that is arranged to receive said at least one error signal from said  
comparison means (5) to adaptively modify the process in said digital signal processor-(2).

14. (Currently Amended) A Hearing aid according to claim 11, ~~characterized in~~  
~~thatwherein~~ the modification means (7; 8) in said signal processing system contains a parameter  
adjustment processor (7) that is arranged to receive at least one error signal from said  
comparison means (5) to adaptively modify the process in said model processor.

15. (Currently Amended) A Hearing aid in accordance with claim 11, ~~characterized in~~  
~~thatwherein~~ the modification means (7; 8) in ~~that~~the signal processing system contains a  
parameter adjustment processor (7) ~~that is~~ arranged to receive said at least one error signal from  
said comparison means (5) to adaptively modify the process in said digital signal processor-(2)  
and in said model processor-(6).

16. (Currently Amended) A Hearing aid in accordance to claim 11, characterized in thatwherein a microphone signal correction processor (9) is provided between said sensing means (4) and the comparison means (5), said processor (9) being arranged to receive said at least one error signal from said comparison means (5) to adaptively modify the process in said microphone signal correction processor (9).

17. (Currently Amended) A Hearing aid according to claim 11, characterized in thatwherein at least one comparison means (5), said model processor (6) containing a parameter correction processor (7) and even-said microphone signal correcting processor (9) are at least parts of thesaid electroacoustic model.